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CHECKLIST ENVIRONMENTAL ASSESSMENT

Project Name: Tie Creek Timber Sale Proposed Implementation Date: July 1,2001, 02
Proponent: Eastern Land Office
Type and Purpose of Action: ELO/DNRC is proposing a commercial timber harvest of ponderosa pine from a harvest area which includes approximately 210 acres of timber land with approximately 4,500 tons being removed. The proposed harvest area is located within one section of state land. The harvest is proposed to remove trees from a range of size classes, while maintaining a healthy stand of ponderosa pine. Approximately 1.0 mile of existing road will be reconstructed and approximately 3.0 miles of new road will be constructed. All new roads will be reclaimed through moving the berm back onto the road surface, mechanical surface scarification and surface broadcast seeding composed of native grass species. Road use after sale activity will be restricted through possible placement of a physical barrier and placement of road closure signs. The harvest prescription is predicted to result in a healthy stand of ponderosa pine that can support re-entry in 20-40 years. An estimated income to the school trust fund of approximately $54,000 is predicted.

Location: All section 36 Twn 3S Rng 60E County: Carter

I. PROJECT DEVELOPMENT	
1. PUBLIC INVOLVEMENT, AGENCIES, GROUPS OR INDIVIDUALS CONTACTED: Provide a brief chronology of the scoping and ongoing involvement for this project.	Letters were sent in May of 1999 to resource professionals and other interested parties seeking comment on the proposed action. A public notice was placed in the Ekalaka Eagle, and ran for two consecutive weeks. Comments were received from: Monte Mason DNRC Minerals Management Bureau, The Ecology Center, Patrick Rennie, Archaeologist, Surface Management Bureau, The Montana Natural Heritage Program, Mary Swedberg, George Mathieus, hydrologist DNRC, and Greg Risdahl, MT FWP.
2. OTHER GOVERNMENTAL AGENCIES WITH JURISDICTION, LIST OF PERMITS NEEDED:	No permits needed and no governmental agencies with jurisdiction.
3. ALTERNATIVES CONSIDERED:	**NO ACTION:** Current land use activities of grazing and recreation would continue without change. Increased fire hazard may occur as more encroachment invades grassland areas and as more stands become more heavily stocked and stagnated. **TIMBER HARVEST ALTERNATIVE:** This alternative will continue the current land uses of grazing and recreation and will also incorporate a selective timber harvest of 4,500 tons of ponderosa pine from approximately 210 acres. The timber harvest will consist of harvesting trees greater than 8 inches in DBH, while leaving approximately 40-80 sqft of BA per acre of trees with good form, crown, and vigor. Approximately 30-40 trees per acre greater than 8"DBH will be retained. The harvest activity will require the construction of approximately 3.0 miles of new road and the reconstruction of approximately 1.0 mile of existing road. All new roads will be closed and reclaimed upon completion of the sale (see discussion in box 4, Soils).

II. IMPACTS ON THE PHYSICAL ENVIRONMENT	
RESOURCE	[Y/N] POTENTIAL IMPACTS AND MITIGATION MEASURESN = Not present or No Impact will occur.Y = Impacts may occur (explain below)

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4. GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE: Are fragile, compactible or unstable soils present? Are there unusual geologic features? Are there special reclamation considerations? Are cumulative impacts likely to occur as a result of this proposed action?	[Y] Soils are sandy to clayey in texture with moderate to high erodibility factor. Surface displacement will occur within the road surface and to a lesser extent in the skid trail locations. Impacts are mitigated through contract stipulations. Roads will be reclaimed by placement of water bars, ripping, seeding to native species, and elimination of vehicle use at the completion of harvest activities. Impacts from skidding activities will be mitigated mostly by the scattered nature of the timber dispersing the skidding activity over a large area. No unusual geologic features occur on the state tract. (See attachment 1 for additional information). Implementation of the above mentioned mitigation measures and implementation of the Best Management Practices will result in no cumulative impacts as a result of the proposed action.
5. WATER QUALITY, QUANTITY AND DISTRIBUTION: Are important surface or groundwater resources present? Is there potential for violation of ambient water quality standards, drinking water maximum contaminant levels, or degradation of water quality? Are cumulative impacts likely to occur as a result of this proposed action?	[N] The lower portion of the main draw within the net sale area is a class III draw with seeps. These areas will be marked as Equipment Exclusion Zones on the ground. All other main draws will be marked as Equipment Restriction Zones with no equipment operation within the Zone. Due to the low precipitation, the lack of perennial streams, minimal amount of new road construction, closure and seeding of the new roads after use, and the selective nature of the harvest, there will be no impacts to water quality, and cumulative impacts are not likely. The DNRC hydrologist visited the site and those comments are included. (See Attachment 1)
6. AIR QUALITY: Will pollutants or particulate be produced? Is the project influenced by air quality regulations or zones (Class I airshed)? Are cumulative impacts likely to occur as a result of this proposed action?	[Y] Particulate will be released into the atmosphere when the brush piles are burned. Brush will only be ignited when ambient air conditions are suitable and air dispersal flows are adequate to lift the smoke into the winds aloft for rapid and thorough dispersal. Environmental conditions required prior to ignition must include adequate snow cover on the ground surface with a long-term forecast of continued low temperatures during daylight hours.

7. VEGETATION COVER, QUANTITY AND QUALITY: Will vegetative communities be permanently altered? Are any rare plants or cover types present? Are cumulative impacts likely to occur as a result of this proposed action?	[N] The existing stand is generally an even-aged stand of ponderosa pine. In the preharvest work tree ages were sampled by boring trees of all size classes. It was determined that the stand was dominated by 80-95 year old trees and did not meet the definition of old growth. The silvicultural prescription calls for harvesting 45 to 50% of the volume from all size classes. This will decrease competition and allow retention trees to release and regeneration should occur in the created openings. The long-term plan for this stand is to maintain the even-aged structure while maintaining available growing space for regeneration. This will be done through this and subsequent harvests. The Montana Natural Heritage Program was contacted and their search found no records of rare plant species in the area. No evidence of rare plant species was found during any of the pre-sale work. Biodiversity RMS 7 in the SFLMP states, "Biological Diversity Strategies for Forest Type Groups" [Remington's Study] or other current references would be used as guidance for landscape-level biodiversity evaluations, old growth protection, and design of timber harvests to promote biodiversity. The Biological Diversity Strategies would be updated periodically, with professional review, as new information and concepts are developed. In May 1998, Remington's Biodiversity Strategies was superseded by the Biodiversity Guidance as allowed for and encouraged under Biodiversity RMS 6 and 7. The Biodiversity Guidance was sent out for internal and external professional review in the summer and fall of 1997. Remington's Biodiversity Strategies is cited in the Biodiversity Guidance as being a tool to help suggest appropriate cover types for various habitat types (Bio-9); however, Remington's Study is not to be used where it is inconsistent with the Biodiversity RMS or the Biodiversity Guidance. In particular, the Landscape Planning and Old Growth Protection portions of Remington's Study are not applicable to current management strategies since they are inconsistent with the direction in Biodiversity RMS 1,3 and 6. The adoption of the Biodiversity Guidance in May 1998 cleared up these inconsistencies and should be viewed as the current procedure for managing for biodiversity and old growth on State Lands.
RESOURCE	[Y/N] POTENTIAL IMPACTS AND MITIGATION MEASURES
8. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS: Is there substantial use of the area by important wildlife, birds or fish? Are cumulative impacts likely to occur as a result of this proposed action?	[Y] This section holds the potential for a wide variety of wildlife species. The primary species that inhabit the area are mule deer, whitetail deer, Merriams turkey, toads, cottontail rabbits, raptors, migratory prairie birds and others. The timber harvest operations should produce minor environmental impacts to wildlife species because of the operational season of use, the layout/location of the harvest units. The operating season (July 1 - April 1) will not interfere with fawning or nesting activities. The harvest plans call for selective harvest of commercial size ponderosa pine(8" DBH with a 16.5 ft log). This will result in a very healthy remaining stand of ponderosa pine. Consequently, reduction of canopy cover will not be extensive in any one locale. All existing snags will be left in place as potential nesting and rest sites. Edge effect within the proposed timber sale should be increased due to the irregular harvest unit boundary layout. Mule deer, and to a lesser extent, whitetail deer may be temporarily displaced during harvest activities but their inherent mobility coupled with surrounding unharvested areas will provide security and biological needs during the displacement period. Due to the selective nature of this harvest, the selective nature of harvest on surrounding ownership, the large unharvested areas, and the lack of public access to this section, there will be no cumulative impacts on terrestrial, avian, and aquatic habitats as a result of the proposed action.

9. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES: Are any federally listed threatened or endangered species or identified habitat present? Any wetlands? Sensitive Species or Species of special concern? Are cumulative impacts likely to occur as a result of this proposed action?	[N] There are no known threatened and endangered species in this general area. There are no documented studies suggesting the existence of T&E species in this area. There are no limited environmental resources within this area. The Natural Heritage Program was also contacted and they have no records of any T&E species, DNRC listed sensitive species, or any species of special concern on or near this section. The small size and selective nature of the sale and the existing surrounding habitat will create no cumulative impacts as a result of the proposed activity.
10. HISTORICAL AND ARCHAEOLOGICAL SITES: Are any historical, archaeological or paleontological resources present?	[N] The entire harvest area has received an ocular review and no historical or archaeological sites were located. The timber sale contract holds a special stipulation that requires immediate curtailment of any action/activity if an historical or archaeological site is discovered during harvest operations. The site will then be completely avoided and registered with the State Historical Preservation Office. The DNRC Archaeologist was contacted in writing for project clearance. The proposed harvest received archaeological clearance from the DNRC archaeologist.
11. AESTHETICS: Is the project on a prominent topographic feature? Will it be visible from populated or scenic areas? Will there be excessive noise or light? Are cumulative impacts likely to occur as a result of this proposed action?	[Y] The proposed harvest will produce temporary visual impacts. This effect will be mitigated over time as the disturbed sites recover and the brush piles are burned. The surrounding region is lightly populated which will result in the temporary visual impact distributed over a limited population size. For these reasons, along with the scattered nature of the timber and grasslands no cumulative impacts are anticipated as a result of the proposed activity.
12. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY: Will the project use resources that are limited in the area? Are there other activities nearby that will affect the project? Are cumulative impacts likely to occur as a result of this proposed action?	[N] The project will not use resources that are limited in the area. The selective harvest on adjacent ownership and vast unharvested areas will have no cumulative effects on limited resources.
13. OTHER ENVIRONMENTAL DOCUMENTS PERTINENT TO THE AREA: Are there other studies, plans or projects on this tract? Are cumulative impacts likely to occur as a result of other private, state or federal current actions w/n the analysis area, or from future proposed state actions that are under MEPA review (scoping) or permitting review by any state agency w/n the analysis area?	[N] This section is leased for livestock grazing and is a classified grazing tract. The lessee was contacted by letter requesting comments and concerns. Her comments were in support of the harvest activity and expressed a willingness to grant access across her private land to access the sale area. No cumulative impacts are likely to occur as there are no other current private, state or federal actions occurring. No other state actions are under MEPA scoping that pertain to this analysis area.

III. IMPACTS ON THE HUMAN POPULATION

RESOURCE	[Y/N] POTENTIAL IMPACTS AND MITIGATION MEASURES
14. HUMAN HEALTH AND SAFETY: Will this project add to health and safety risks in the area?	[N] Human health will not be impacted by the proposed timber sale or associated activity. Safety considerations and temporary risks will increase for the professional contractors working within the sale area, and possibly for public vehicle traffic on the highway and the county road while log trucks are hauling. There are no unusual safety considerations associated with the proposed timber sale. The general public or local residents should not face increased health or long term safety hazards because of the proposed timber sale.
15. INDUSTRIAL, COMMERCIAL AND AGRICULTURAL ACTIVITIES AND PRODUCTION: Will the project add to or alter these activities?	[Y] The section involved with the proposed timber sale is classified grazing land. The primary grazing period or season of use is late May through late summer. The current amount of available livestock forage will temporarily be reduced. Over a short period of time the disturbed and re-seeded sites will recover and forage levels should return to their present levels or beyond.

16. QUANTITY AND DISTRIBUTION OF EMPLOYMENT: Will the project create, move or eliminate jobs? If so estimated number. Are cumulative impacts likely to occur as a result of this proposed action?	[N] People are currently employed in the wood products industry in the region. Due to the relatively small size of the timber sale program, there will be no measurable cumulative impact from this proposed action on employment.
17. LOCAL AND STATE TAX BASE AND TAX REVENUES: Will the project create or eliminate tax revenue? Are cumulative impacts likely to occur as a result of this proposed action?	[N] People are currently paying taxes from the wood products industry in the region. Due to the relatively small size of the timber sale program, there will be no measurable cumulative impact from this proposed action on tax revenues.
18. DEMAND FOR GOVERNMENT SERVICES: Will substantial traffic be added to existing roads? Will other services (fire protection, police, schools, etc) be needed? Are cumulative impacts likely to occur as a result of this proposed action?	[N] There will be no measurable cumulative impacts related to demand for government services due to the relatively small size of the timber sale program, the short-term impacts to traffic, the small possibility of a few people temporarily relocating to the area, and the lack of other timber sales in the adjacent area.
19. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS: Are there State, County, City, USFS, BLM, Tribal, etc. zoning or management plans in effect?	[Y] In June 1996, DNRC began a phased-in implementation of the State Forest Land Management Plan (Plan). The management direction provided in the Plan comprises the framework within which specific project planning and activities take place. The Plan philosophy and appropriate Resource Management Standards have been incorporated into the design of the proposed action.
20. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES: Are wilderness or recreational areas nearby or accessed through this tract? Is there recreational potential within the tract? Are cumulative impacts likely to occur as a result of this proposed action?	[N] There are no wilderness recreational areas nearby or accessed by this tract. There is no recreational potential for this tract as the area is surrounded by private land with no public access, therefore no cumulative effects will occur as a result of the proposed action.
21. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING: Will the project add to the population and require additional housing? Are cumulative impacts likely to occur as a result of this proposed action?	[N] There will be no measurable cumulative impacts related to population and housing due to relatively small size of the timber sale program, and the fact that people are already employed in this occupation in the region.
22. SOCIAL STRUCTURES AND MORES: Is some disruption of native or traditional lifestyles or communities possible?	[N]
23. CULTURAL UNIQUENESS AND DIVERSITY: Will the action cause a shift in some unique quality of the area?	[N]
24. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES: Is there a potential for other future uses for easement area other than for timber management? Is future use hypothetical? What is the estimated return to the trust. Are cumulative impacts likely to occur as a result of this proposed action?	[N] The proposed economic return to the trust for this sale will be approximately $54,000, which was calculated by taking the estimated 4,500 tons multiplied by the minimum bid rate. The minimum stumpage price was estimated by using comparable sales analysis. Costs, revenues, and estimates of return are estimates intended for relative comparison of alternatives. They are not to be used as absolute estimates of return. For FY 99, ELO had revenue to cost ratio of 0.11:1 and statewide DNRC had a ratio of 1.36:1. The Eastern Land Office currently has 3.75MMBF under contract that will significantly increase the ratio in the next two to three Fiscal years.

EA Checklist Prepared By:

Chris Pileski	Forester	October 25, 2000
Name	Title	Date

IV. FINDING

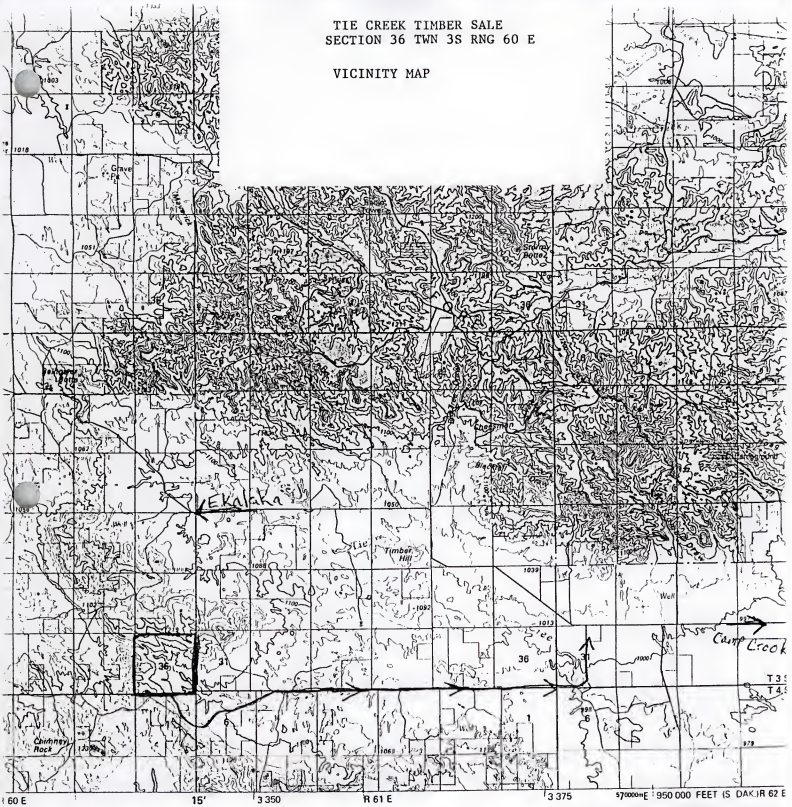
25. ALTERNATIVE SELECTED:	The timber harvest alternative is the selected Alternative.
26. SIGNIFICANCE OF POTENTIAL IMPACTS:	The proposed harvest of approximately 4,500 Tons of commercial size ponderosa pine on the State section within approximately 210 acres will not result in nor cause significant environmental impacts. The predicted environmental impacts will be adequately mitigated through the proposed timber sale plan, harvest prescription, operating period, unit boundaries, road layout and contract stipulations. The general public was officially notified of the proposed timber sale by published public notice and appropriate comments and concerns were incorporated into the proposed timber sale. The lessee of record was contacted and was in favor of the proposed sale. Agency specialists were contacted and appropriate comments and concerns were incorporated into the proposed timber sale. The sale meets the intent, standards, and guidence of the SFLMP. The proposed harvest will insure the trust fiduciary mandate is satisfied and the natural resources are treated in such a manner as to produce long term production. An environmental assessment checklist is the appropriate level of analysis for the proposed action.
27. Need for Further Environmental Analysis: [ ] EIS [ ] More Detailed EA [x] No Further Analysis	

EA Checklist Approved By:

Dwayne Andrews	
Name	Title
Dwayne Andrews	12/21/2000
Signature	Date

TIE CREEK TIMBER SALE
SECTION 36 TWN 3S RNG 60 E

VICINITY MAP



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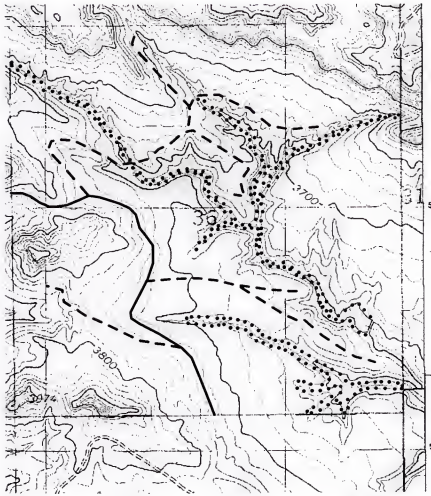
State, County, City, Wildlife, Park and Outdoor Recreation Areas. . NONE

Acquired Lands (By Administering Agency) . . . . . NONE

Tie Creek Timber Sale
Section 36 T3S R60E



View1

- Equipment Restriction Zones
- New roads
- Existing roads
- Image Bell Tower Butte Map

ATTACHMENT 1

TO: **Chris Pileski, Forester, Eastern Land Office**

cc: **Dwayne Andrews, Manager, Eastern land Office**
Jeff Collins, Soil Scientist, Forest Management Bureau
Gary Frank, Hydrologist, Forest Management Bureau
Bill Schultz, Supervisor, State Land Management Section

FROM: **George Mathieus, Hydrologist, Forest Management Bureau**

SUBJECT: **Tie Creek Proposed Timber Sale Write-up**

DATE: **January 11, 2001**

Existing Conditions/Effects Analysis
Tie Creek Proposed Timber Sale
Section 36, T3S-R60E
Eastern Land Office

INTRODUCTION

The following document contains background information for the watershed and soils portion of the proposed Tie Creek Timber Sale Environmental Assessment. This analysis includes an existing conditions and effects assessment of all watercourses draining the proposed sale area. Write-up and assessments are based on a coarse filter screening approach and an on-site field review of all contributing areas within the proposed sale area.

POTENTIAL ISSUES

Soil Resources:

Equipment operations and timber harvest on steep slopes or sensitive soils can result in soil impacts that effect soil productivity depending on area and degree of physical effects and amount or distribution of course woody debris retained for nutrient cycling.

Noxious Weeds:

Following disturbance events such as timber harvest activities, invasion and spread of noxious weeds is more prevalent than in undisturbed areas. Noxious weed invasion and spread detrimentally influences surface cover, erosion and native species growth.

Cumulative Watershed Effects:

Cumulative watershed effects can be characterized as impacts on water quality and quantity that result from the interaction of disturbances, both human-caused and natural. Timber harvest can affect the timing of runoff, increase peak flows and increase the total annual water yield of a particular drainage.

AFFECTED ENVIRONMENT

The proposed sale area lies within one state section surrounded by private lands. Precipitation ranges from 10-15 inches per year. An ephemeral tributary to Tie Creek, a tributary to the Little Missouri River, drains the sale area. There are no perennial streams draining the proposed sale

area, it consists of ephemeral draws and coulees with only infrequent minor surface flows for short durations.

Regulatory Framework:

This portion of the Little Missouri River basin, including the Tie Creek drainage, is classified C-3 in the Montana Water Quality Standards. Waters classified C-3 are suitable for bathing, swimming and recreation, growth and propagation of non-salmonid fishes and associated aquatic life, waterfowl and furbearers. The quality of these waters is naturally marginal for drinking, culinary and food processing purposes, agriculture and industrial water supply. No increases are allowed above naturally occurring concentrations of sediment, settable solids, oils or floating solids, which will or are likely to create a nuisance or render the waters harmful, detrimental, or injurious to public health, recreation, safety, welfare, livestock, wild animals, birds, fish, or other wildlife. C-3 (ARM 16.20.624 1(f)).

"Naturally occurring" means conditions or materials present from runoff or percolation over which man has no control or from developed land where all reasonable land, soil and water conservation practices have been applied. "Reasonable land, soil and water conservation practices" include methods, measures or practices that protect present and reasonably anticipated beneficial uses. The state of Montana has adopted Forestry Best Management Practices (BMPs) through its Non-point Source Management Plan as the principal means of meeting Water Quality Standards.

Existing beneficial uses in the immediate vicinity of the proposed sale area include water rights for groundwater sources include stock, lawn & garden and domestic uses. Surface water sources include stock uses. Outside of the analysis area, downstream beneficial uses include aquatic life support and warm water fisheries.

The Clean Water Act and EPA Water Quality Planning and Management Regulations requires the determination of allowable pollutant levels in 303(d)-listed streams through the development of Total Maximum Daily Load (TMDL) limits. There are no water quality limited segments within the project area (as per Section 303(d) of the Clean Water Act) in the 305(b) report.

Fisheries:

Due to the ephemeral nature of the stream channels and disconnectivity to Tie Creek and ultimately the Little Missouri River, no fish species are present within the analysis area.

Soil Resources:

Slopes within the sale area are moderate, ranging from 5-50%, with isolated steeper breaks along draw features. There were no signs of slumping or mass wasting. Draws are typically "box-shaped" with distinctive topographic breaks.

Soils along ridges are shallow to very shallow sandy silt loams with 2-6" topsoil and considerable outcropping sandstone on upper-forested slopes. Deeper clay loams and silty clay loams occur on moderate slopes of about 5-30% with shale outcrops common. Draw bottoms contain similar red clays as mid-slope, but are deeper and seasonally wetter. The primary soils concern is displacement and erosion of the shallow surface soils.

Approximately 2.0 miles of private ranch road provides access to the sale area. This system is a low standard road that is not currently meeting BMP standards. The existing road system may continue to be a source of potential erosion and sediment delivery unless remedial action and sufficient mitigation measures are undertaken.

Noxious Weeds:

Spots of thistle (Cirsium arvense) occur within the project area mainly along the existing roads and an irrigation dam. No real outbreaks or large infestations were noted within the project area.

Cumulative Watershed Effects:

Past management activities in the general vicinity include grazing; fire suppression, road construction and timber harvest. There has been a moderate level of recent selective timber harvest on adjoining private lands.

A cumulative watershed effects analysis for the proposed sale was completed to determine the existing conditions of the affected environment. Due to the low precipitation region, ephemeral nature of the stream channels and the large area typical of east-side ephemeral drainage's, a smaller, more defined boundary was selected for the analysis area. This analysis area was selected because it was determined to be the most appropriate scale to detect potential effects.

A DNRC Hydrologist evaluated all drainage features and draw bottoms draining the proposed sale area. All tributaries to Tie Creek have no surface connectivity or any perennial flow.

Field evaluation concludes that past management activities have resulted in impacts to soil resources. These impacts have been limited to erosion from existing roads and minor cattle trampling.

ENVIRONMENTAL CONSEQUENCES

The proposed timber sale is comprised of one action alternative. This alternative would selectively treat approximately 209 acres. Approximately 2.0 miles of new temporary road would be constructed and 1.0 miles of road reconstruction would occur. Portions of the 2.0 miles of existing road would be improved to meet BMP standards.

Noxious Weeds:

No Action Alternative:

Under the No Action Alternative, weed seed may spread by vehicle traffic, wind and animal dispersion into the project area, which would result in competition with native species trying to establish in recently disturbed areas.

Action Alternative:

Ground disturbing activities associated with the proposed action alternative have the potential to introduce or spread noxious weeds in susceptible habitat types. Under the Action Alternative, DNRC would follow an integrated weed management approach to help prevent the introduction and establishment of noxious weeds and slow the expansion of existing weeds.

Cumulative Effects of Noxious Weeds:

Invasion and spread of noxious weeds would decrease soil productivity and stability and reduce the reestablishment of native species. A combination of prevention, revegetation and monitoring will be implemented to reduce the possible infestation and spread of weeds associated with this project.

Soil Resources:

No Action Alternative:

Under the No-Action alternative, there would be no direct effects to soils or geology. Segments of existing roads with inadequate drainage identified in the affected environment would continue to erode without maintenance. Small slumps may continue to move and erode as influenced by seismic activity, tree wind-throw, or severe climatic conditions.

Action Alternative:

Due to the ephemeral nature of the draws within the sale area, the proposed activities have a low potential to contribute to the degradation of water quality and soil productivity. The primary water and soil concerns associated with the proposed timber sale activities are sediment delivery to the draws, erosion of soil and subsequent loss of site productivity. Vegetative regrowth is a critical factor in avoiding long-term soil erosion from harvest activities.

Cumulative Effects to Soil Resources:

Portions of the existing low standard road systems would be improved under the proposed action to a standard that meets minimum BMPs. Improvements to this road system are expected to decrease existing and future risk of sediment delivery to draws.

Proper application of BMPs and site-specific designs and mitigation measures would reduce future erosion and potential water quality impacts to an acceptable level as defined by the water quality standards. Acceptable levels are defined under the Montana Water Quality Standards as those conditions occurring where all reasonable land, soil and water conservation practices have been applied. There is little risk of adverse impacts to water quality and beneficial uses occurring as a result of the proposed action alternatives.

Cumulative Watershed Effects:

No Action Alternative:

The no-action alternative would have minimal effects to cumulative watershed effects. Moderate timber management activities in the surrounding drainage's and the range-like landscape have resulted in undetectable cumulative watershed effects.

Action Alternative:

There are no cumulative watershed effects constraints associated with the proposed sale area. This is due to the following reasons:

- Low precipitation region.
- No perennial streams.
- New road construction will be minimal design and excavation. These roads will be closed and mitigated at the end of the sale.
- The proposal is for a selective harvest in stands that are overstocked from that of natural, pre-fire suppression stands.

CONTRACT, SALE & MITIGATION DESIGN RECOMMENDATIONS

General Road Design and Mitigation Recommendations:

- Construct drain dips, grade rolls and other drainage features where necessary and practical to insure adequate road surface drainage. **Install and maintain all road**

surface drainage concurrent with new road construction, reconstruction and reconditioning. Drain dips constructed on sustained road grades greater than 8% may require gravel surfacing to function properly. Sustained road grades greater than 10% may require installation of conveyor belt water diverters.

- Stabilize newly constructed road cuts and fills following excavation. Stabilization can be met through one or more of the following: seeding, benching or mulching. Apply seed as soon as conditions permit to maximize successful establishment of grass cover. Local professional judgement and consideration for temperature and precipitation would determine when seeding is likely to be most successful. Delay of seeding may require scarification of crusted soils.

- Leave all temporary or abandoned roads in a condition that will provide adequate drainage and will not require future maintenance. Partially obliterate abandoned roads through ripping and seeding. Where it is available, scatter slash across the ripped road surface. Install water bars at regular intervals to facilitate surface drainage.

- Provide effective sediment filtration through the use of slash filter windrows, filter fabric fencing or straw bales along drainage features located in areas with inadequate buffer capacity. Note: straw bales alone may not be effective in areas with heavy concentrations of livestock or big game.

- Where potential erosion exists at the outlet of drainage features, provide outfall protection using slash and/or coarse angular rock.

- Filter ditches with direct delivery to ephemeral draws at the outlet by using slash, or filter fabric and straw bales.

- Incorporate slash filter windrows at all ephemeral draw crossings requiring fills that are greater than 2 feet deep. Insure that windrows are keyed into the toe of road fill.

- When excavating material in and around ephemeral draw crossings (i.e. cleaning inlets and outlets, constructing ditches, etc.) Special care should be taken so as not to cause an excessive amount of disturbance to the draw bottom or area immediately adjacent to the crossing sites. Excess or waste material should be disposed of at a location where it will not erode directly into the stream or draw bottom.

- Limit road use and hauling to dry, frozen or snow covered conditions. **Suspend operations during periods <u>before</u> rutting occurs.**

Noxious Weeds:

- Clean all road construction and harvest equipment of plant parts, mud and weed seed to prevent the introduction of noxious weeds. Equipment would be subject to inspection by forest officer prior to moving on site.

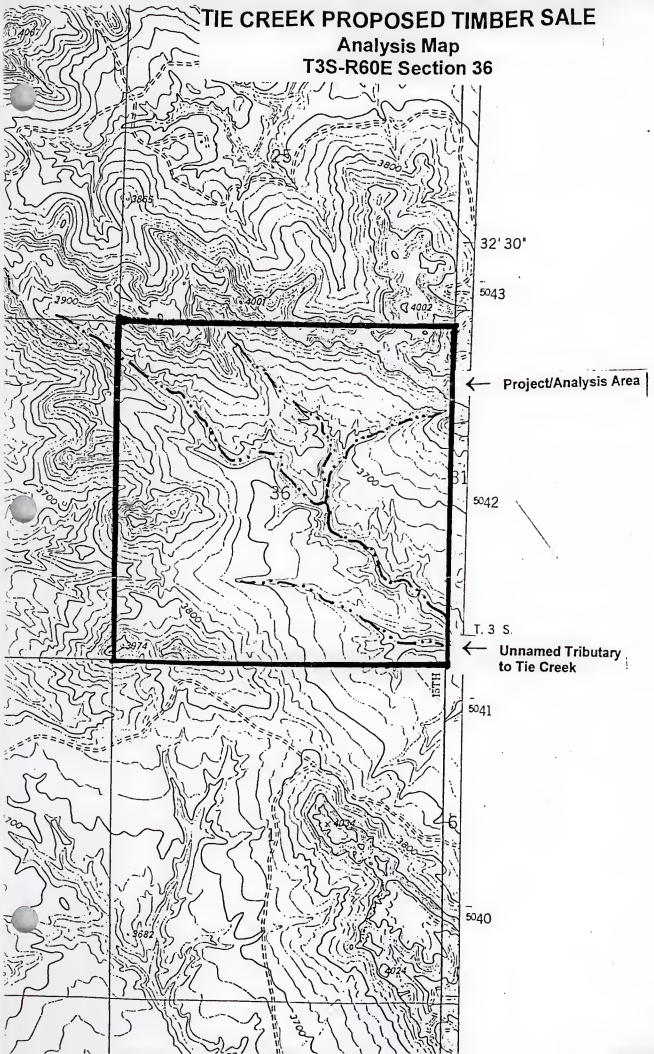
- Re-seed all newly disturbed soils on road cuts and fills to site adapted grasses for reduction of weed encroachment and stabilization of roads.

- Monitor the project area for two years after completion of harvest activities to identify occurrence of any noxious weeds on site. If noxious weeds occur, a weed treatment plan should be developed and implemented to eradicate the noxious weeds.

General Design and Mitigation Recommendations for Harvest Units:

- No slash burning should occur in or near areas of concentrated ephemeral flow.
- Implement equipment restriction zones (ERZ) along deeply incised ephemeral draws.
- In all units, designate ERZs below slope breaks > 45%. These areas shall require directional felling and winching as designated by the forest officer.
- Develop a skidding plan prior to equipment operations. Skid trail planning would identify which main trails to use, and what additional trails are needed. Trails that do not comply with BMPs (i.e. draw bottom trails) should not be used and closed with additional drainage installed where needed or grass seeded to stabilize the site and control erosion.
- Seed skid trails over 30% thus reducing the potential for off-site erosion.
- Leave 5-10 tons/acre of large woody debris on the ground to enhance seedling growth and maintain long-term overall soil productivity.

TIE CREEK PROPOSED TIMBER SALE

Analysis Map

T3S-R60E Section 36